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THE following communications were read :—

I. Extract of a letter from Sir J. Herschel to Mr. Baily, dated February 27, 1836, on the present appearance of γ Virginis. Communicated by Mr. Baily.

“ I would gladly call the attention of such astronomers as possess powerful telescopes, to the extremely remarkable circumstances under which the binary star γ in the constellation *Virgo* is at present observed. It may be remembered that, in my first computation of its elliptic orbit, I stated its distance of nearest apparent appulse at 0''.51, adding that to observe it at the moment of such nearest approach as a double star, would require telescopes of the very first excellence. Subsequent calculations, indeed, had afforded ground for presuming that the real ellipse might be a little less elongated than that resulting from a first approximation, although on any supposition the approach of the two stars could not fail of being such as to render it extremely difficult to separate them.

“ γ Virginis, however, at this time is to all appearance a single star. I have tormented it, under favourable circumstances, with the highest powers I can apply to my telescopes, consistently with seeing a well-defined disc, till my patience has been exhausted ; and that lately, on several occasions, whenever the definition of the stars generally, in that quarter of the heavens, would allow of observing with any chance of success, but have not been able to procure any decisive symptom of its consisting of two individuals.

“ On the 17th instant, being a night of uncommonly good definition for the season, I turned the twenty-feet reflector out of the meridian, as a preliminary trial, on γ Centauri, which was seen double without difficulty under a power of 320, and with the whole aperture open, and afterwards on *Saturn*, which was also seen with uncommon distinctness. It was then directed to γ Virginis, and the night being further advanced, the air tranquil, and vision much improved, I fully expected to have been enabled to divide it, at least with the aid of a diminished triangular aperture, and all the magnifying power the night would bear. I was, however, disappointed. It bore a magnifying power of 480 with sufficient distinctness, but without indicating the slightest elongation or giving any symptom of its being otherwise than a single star. Had the centres of the two stars been only half a second asunder, I think I could not have failed to see a division between them.

" Yet its lustre to the naked eye remains what it used to be; at least, as well as I can remember it, it seems unchanged. This allows me to suspect that the real discs of the two stars are clear of each other, and that no total or partial eclipse has occurred. With a view, however, to settle this question on the recess of the stars, which can hardly be delayed more than a year, I have made the following comparisons with neighbouring stars favourably situated; viz.

γ	Virginis is now less than β or γ Corvi.
—	equal to δ Corvi.
—	greater than ϵ Corvi.

These comparisons will of course be renewed from time to time.

" It may not be irrelevant to mention that I strongly suspect the beautiful and delicate double star τ *Lupi* to be undergoing the same critical change. At least, I cannot help considering it now a much more intractable object than when I first discovered it to be unequivocally double. Indeed, a few evenings ago, during a time of tolerably good definition, I had the utmost difficulty in perceiving any elongation whatever, whereas I used to consider it as of the order '*Vicinae*,' or at the utmost '*Pervicinæ*,' of Struve.

" Halley's Comet continues in a very favourable state for observation, and I hope to follow it at least another month,* though the ensuing full moon will most probably put a final end to the pursuit."

II. Observations of Halley's Comet, made at Bedford. By Capt. W. H. Smyth, R.N.

The result of this paper is fifty places of the comet, on eighteen different days, from August 24 to October 21, 1835. With the exception of three meridian observations, and four with a double-wire micrometer, the whole of the observations were made with an annular micrometer, presented to Capt. Smyth by Mr. Baily. The motion of the comet was taken into account in a formula furnished by Mr. Epps, of which an investigation and example is given. The original observations, the positions of the stars of comparison (comet-pointers), and finally the places of the comet, are tabulated. It was first seen on the 24th of August, as "a nebulous blot of indistinct form and misty appearance;" on the 28th, the nucleus was visible, and very distinct on the 31st. On the 9th and 10th of October, an appearance of a luminous brush or fan accompanied the nucleus, being not unlike that exhibited in a drawing of Hevelius (*Annus Climactericus*) which represents an appearance of this same comet in 1682, and a copy of which will appear with the paper in the Memoirs. Captain Smyth has given several representations of the comet's appearance, which, though rough, are of a striking character, formed

* In a subsequent letter to Captain Smyth, Sir J. Herschel says, "I pursued the comet till the 5th of May. From that time to the 11th no observation could be got, and I was deprived of all chance of pursuing it further by an impostor -- a nebula, undescribed in my catalogue, under g *Sextantis*, just where I expected to have seen the comet, and looking just as I expected it to look. Next night, on setting a sweep to pass over the place, there stood the nebula unmoved, but the real comet was nowhere to be found."